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Abstract

Robust economic development is not possible without financial deepening more especially in rural communities where the majority of the populace of Less Developed Countries (LDCs) resides. This paper analyses the impact of rural financial development on economic growth of Nigeria. The study uses time series data covering 1980 to 2011 periods paving the way for the application of Johansen and Juselius model of cointegration to detect the long-run relation among the variables in question. Accordingly, Dynamic Ordinary Least Square (DOLS) method was applied to unveil relationship between rural financial development and economic growth. The cointegration test result reveals the presence of long run relation between rural financial development and economic growth of Nigeria. Moreover, the DOLS results found a significant positive relationship between rural financial development and the growth of the Nigerian economy. It has been confirmed in this study that rural finance serves as an engine of growth in the country. It could therefore be concluded that enhancing productive credit, especially in rural areas could free the disadvantaged entrepreneurs and thus enable them to contribute immensely toward the growth of the Nigerian economy. As such, for the transformation agenda of the Federal Government of Nigeria to be achieved, sufficient financing arrangement need to be in place in order to satisfy the financial needs of the farmers. The study, therefore recommends, among other things, barriers to the productive credit allocation in rural community should be reduced to the barest minimum.

Keyword: Credit allocation, financial development, rural development

JEL Classification: E44, O16, O55

I Introduction

Inclusive growth notion compels the economies of third world to initiate and implements variant policies and programmes aimed at transforming the paralysed economic agent into active players towards enhancing the growth of their economy. The Nigerian government is no exception, the government efforts at enhancing inclusive growth are well informed through the campaign by the Central Bank of

Nigeria's (CBN) financial inclusion strategies with the twin broad objectives; firstly, to incorporate the vast majority of the unbanked populace more especially in the rural community into active players of the financial system. Secondly, it is also aimed at enhancing availability of credit to rural populace with the paramount emphasis on farmers at affordable cost. Unfortunately, the usufruct of the financial inclusion strategies such as Rural Banking and Agricultural Credit Guarantee Scheme (ACGSF) among others, does not reach the targeted beneficiaries. Some of the problems identified as responsible for poor performance in the development of Africa's rural financial markets include excessive controls, ineffective supervision and a dearth of qualified manpower on the one hand (Aliero, 2009). On the other hand, the programmes have at one time or the other been influenced by political considerations (Ibrahim and Aliero, 2012)

Successive governments in Nigeria have introduced several poverty alleviation programmes from Structural Adjustment Programme (SAP) passed through National Economic Empowerment and Development Strategy (NEEDS) down to Transformation Agenda. However, such programmes have not achieved their targeted objectives (Ibrahim and Aliero, 2011). For instance, relevant data from NBS (2011) shows that the national unemployment rate stood at 23.9 percent in 2011 compared to 21.1% in 2010 and 19.7% in 2009 while the rate is higher in the rural area (25.6%) than in the urban area (17.1%). Poverty and unemployment in Nigeria are two sides of the same coin and could be linked to lack of adequate financial access, particularly in the rural, among other things (Aliero, Ibrahim and Shuaibu, 2013). It has been argued that financial development has the capacity of reducing unemployment. It is along this line that Dromel, Kolakez and Lehmann (2010) contend that the development of private credit (which is a measure of financial development) would significantly lower unemployment persist. This led Aliero and Ibrahim (2012) to predictably believe that enhancing access to formal financial services, especially credit to the rural populace has not only have the capacity of reducing unemployment but is also a means of reducing poverty in developing countries.

The recent breakthrough in the development finance emphasises that economic development of Less Developed Countries (LDCs) could be best accomplished through a paradigm shift from top-bottom to bottom-top intervention principally due to duo reasons. Firstly, the majority of the populace of LDCs are dwelling in the rural areas while very small fractions are residing in the cities swimming within an overwhelming quantity of national cake. Secondly, history shows that before LDCs opted for urbanisation programmes (top-bottom intervention), development is steadily trickling-down through the entire country paving the way for economic prosperity in a simpler format. To my knowledge, there is yet no study conducted using time series techniques of data analysis on the relationship between rural financial sector development and economic growth in Nigeria. This study intends to fill-in the lacuna by unveiling the role of rural financial development on the growth of the Nigerian economy. In achieving this objective the paper is divided into five sections including this introduction. Section two presents the theoretical framework and review of literature. Section three contains the methodology of the study. Section four is the empirical result and discussions, while the last section concludes the paper.

II Theoretical Framework and Empirical Literature

This section is divided into two folds. In the first part, it contains the theoretical framework which was used as a basis for analysis of this study, the second parts is a review of empirical literature.

A. Theoretical Framework

The induced poverty reduction and economic development theory lend itself to the micro-credit delivery model. Agreeing to this hypothesis, every nation that embarks on the path of economic development necessarily encounters a lot of restraint imposed by inelasticity on the provision of strategic inputs (Umoh and Ibang, 1997). Unless efforts are addressed towards the loose reduction of these constraints by

producing substitutes for these factors with inelastic supply, the whole process of economic growth is bound to be greatly depressed (Hayami and Ruttam, 1971). Furthering access to finance to rural poor has been distinguished as an indispensable tool in development. A poorly developed financial system is an obstacle to the wealth creation, enhancement of socioeconomic welfare and advancement of human dignity (Iniodu and Upak, 1996).

The provision of financial support through credit and savings for acquisition of capital goods is crucial for effective economic management, the aims of which are to increase prosperity, equity and sustainability. Economic management goals like provision of full employment, eradicating poverty, enhancing economic growth and alike are consistent with the primary objectives of the provision of rural finance. Altogether these are founded on the assumptions that additional money, either in the form of loan or savings will result in an increment in overall liquidity available to the families. This additional liquidity can be used to expand any of the households' production, consumption and investment activities as enunciated in savings-investment gap model which is used to justify borrowing for economic development.

B. Empirical Literature

Unlike the empirical study of the relationship between financial development indicators (using numerous proxies ranging from broad money supply, credit to the private sector to market capitalisation) and economic growth, there is a dearth of literature on the effect of rural financial sector development on economic growth for both developed and developing economies. The review in this study encapsulates the orthodox measures of financial sector development along which Patrick (1966) done pioneering research to examine the causal relation between financial development and economic growth which reveals a unidirectional causality between financial development and economic growth, the result portrays a supply-leading association but at the later phase the direction of causality is inverted to demand-following relationship.

Economic system upon which country operates influences the effect of credit market development on economic growth. Caporale, Rault, Suva and Suva, (2009) investigate the relationship between financial development and economic growth in transition economy by estimating a dynamic panel model over the period 1994 -2007. The study found that the contribution of the financial sector to economic growth is limited owing to a lack of financial depth. Moreover, the Granger causality test indicates that causality runs from financial development to economic growth, but not in the opposite direction. The supply leading and demand following hypotheses were examined by Muhammad and Umer (2010), using annual data between 1973 - 2008 for Pakistan employing a bound testing approach for cointegration and the result of the study favours that the demand-following hypothesis, as the economy grow, the demand for financial financial services is also growing in Pakistan.

Testing the competing finance-growth nexus hypothesis using Granger causality tests in a Vector AutoRegression (VAR) framework over the period 1960 - 2009 for Nigeria was conducted by Odeniran and Udejaja (2010). Four variables, namely; ratios of broad money stock to Gross Domestic Product (GDP), growth in net domestic credit to GDP, growth in private sector credit to GDP and growth in banks deposit liability to GDP were used for proxy financial sector development. The empirical results suggest bidirectional causality between the proxies of financial development and economic growth variable. The variance decomposition shows that the share of deposit liability in the total variations of net domestic credit is negligible, indicating that the shock to deposit does not significantly affect net domestic credit.

In a related development, Zaman, Izhar, Khan, and Ahmad, (2012) examine the impact of financial indicators of human development in Pakistan by using annual data from 1975 - 2010. The data were analysed using cointegration test, Granger causality test and variance decomposition. Results indicated that causality runs from financial indicators to human capital except credit to the private sector but not vice versa. Financial indicators are closely associated with economic growth and human

development in Pakistan. However, variance decomposition analysis shows that among all the financial indicators, broad money supply (M2) has exerted the largest contribution to changes in human capital.

Positive relationship between finance and growth do not necessarily mean that financial development reduces poverty (Beck, Demirgüç-Kant, Laeven and Makisimovic, 2006). Accordingly, Aliero and Ibrahim (2012) investigate the impact of financial services on poverty reduction in rural areas of Katsina state. A cross sectional primary data were analysed using the multinomial logit model and the result reveals a significant negative relationship between financial services and poverty level. The implication of this finding is that financial development has the first order role to play in generating employment, thereby paving way for the reduction of poverty in LDCs. Khadraoui and Smida (2012) examines the relationship between financial development and economic growth using panel data of 70 countries over the period 1970-2009 analysed via both fixed effect, Generalized Method of Moment (GMM) -Difference and GMM-System estimators for dynamic panel data. While the finding of a positive correlation between indicators of financial development and economic growth cannot settle this debate, advances in computing capacity and availability of large cross-country data sets with relatively large time dimensions have enabled researchers to rigorously explore the relationship between financial development and economic growth. Empirical results reinforce the idea that financial development promotes economic growth in all econometric approaches used.

III Methodology

The time series secondary data for the relevant variables were sourced from a CBN statistical bulletin on various issues, National Bureau of Statistics, International Financial Statistics (IFS) and World Development Indicators (WDI). The data covers 1980-2011 period and variables were expressed in their natural logarithm. Logarithmic transformations of variables are very popular in Econometrics for a number of reasons; firstly many economic time series data exhibits a strong trend,

secondly, taking the natural logarithm of a series effectively linearizes the exponential trend (if any) in the time series data for the log function is the inverse of an exponential function (Asteriou and Price, 2007). The third advantage is that it allows the regression coefficients to be interpreted as elasticity. In a study dealing with time series data, opting for the log of the variables may prevent cumbersomeness in the modelling and inference (Rahaman and Salahuddin, 2010).

According to Camacho-Gutierrez (2010) when all series are integrated order 1 [i.e I (1)], then Dynamic Ordinary Least Square (DOLS) is robust to estimate the single cointegrating vector that characterizes the long-run relationship among the variables. For the Stock-Watson DOLS model to be effective in estimating long-run parameters, the analysis must be in conformity with the existence a cointegration relation among sets of I (1) variables. Thus, it is pertinent to establish the presence of the unit root and then test the cointegrating relationship. Having all series integrated of the same order, as well as establishing at least one cointegration equation. The data, therefore, satisfies the preconditions for the application of the Stock-Watson (1993) DOLS regression. Thus, the model for this study is specified below:

$$\ln RGDP_t = \beta_0 + \vec{\beta} x_t + \sum_{j=-g}^p \vec{d}_j \Delta x_{t-j} + u_t \dots \dots \dots (1)$$

Where $\ln RGDP$ is the natural log of Real Gross Domestic Product (RGDP), $\vec{\beta}$ is the vector of coefficients, X is vector of log of logRufinde (Rural Financial Development), logFDI (Foreign Direct Investment) and logInflation as explanatory variables. The emphases of the previous studies were measuring financial development using either broad money supply as a ratio of economic growth (M2) or Credit to the Private Sector ratio of economic growth (CPS) irrespective of the extent of the degree of development of such economies. Failure to take the degree of economic development of a country into cognisance may lead to the selection of bogus measure of financial development and so studies are bound to produce mixed results. It is normal for financial sector development to support economic growth in the advanced economies with the reasonable sophisticated banking sector. On the

other hand, in LDCs where very few people are familiar with modern financing techniques owing to low banking culture not only in the rural areas but also in urban centres. It is worthy to note that in spite of concentration of banks in the metropolitan area of LDCs, the banks are not sufficient enough to cater for the financial needs of the populace albeit bank-run bank-run is occurring only by the month ending when workers received their salaries. In connections to that, over two-third of the populace are dwelling in rural areas with of dearth financial institution, in such economies the link between financial sector development and economic growth might be very weak. Accordingly, it could be unquestionably argued that the stock of formal credit in the rural areas can be used as a proxy for rural financial development in LDCs. For this study to assess the robustness of rural financial development over conventional measures of financial development, therefore, a model is set below which lumped the two competing measures together:

$$\ln RGDP_t = \alpha.x_t + \Phi.\ln findev_t + \mu_t \dots\dots\dots(2)$$

From the model it shows that findev is the vector of financial indicators (M2 and Credit to the Private Sector were added to Rural Financial Development) and X is the vector of control variable. Lag and lead terms included in DOLS regression have the purpose of making its error term independent of all past innovations in stochastic regression.

IV Empirical Result and Discussion

To ensure that the data is suitable for cointegration regression so as to avoid spurious results, the degree of integration of each series involved is determined using the ADF unit root test and the result is presented in Table 1. The lag parameter in the ADF test is selected by Akaike Information Criterion (AIC) to eliminate the serial correlation in residual.

Table1: Result of unit root tests

Variable	Augmented Dickey-Fuller (ADF) Test	
	Levels	First Difference
LORGDP	-3.51006**	-5.05106***
LOGRUFINDEV	-0.91394	-7.36635***
LOGFDI	-3.06194**	-4.41814***
LOGINFLATION	-3.42582**	-5.73094***
LOGM2	-1.47492	-6.035033***
LOGCPS	-1.797105	-4.58896***

*** & ** indicate significance at 1% and 5% level respectively

It could be discerned from the Table 1 that all the series are not stationary at their level form at 1% level of significance and so unit root tests null hypotheses are not rejected. However, the test rejects the null hypotheses of non stationary for all the series when used in the first differences. This shows that all series are stationary in the first differences and integrated of order one [I(1)]. Therefore, the series satisfies the necessary conditions for the application of JJ cointegration technique and paving the way for the credence of DOLS for the study. Accordingly, we used the difference values of the variable to estimate the cointegration regression based on equation 2 and the result of the cointegration is presented in Table 2.

Table 2: Johansen Co-integration Results

Hypotheses	λ_{\max}	5% critical value	Prob. **	Eigenvalue	λ_{trace}	5% critical value	Prob. **
None *	61.88889	40.07757	0.0001	0.939983	146.0501	95.75366	0
At most 1 *	42.03922	33.87687	0.0043	0.852049	84.16119	69.81889	0.0023
At most 2	21.87382	27.58434	0.2269	0.630004	42.12197	47.85613	0.1553
At most 3	10.2003	21.13162	0.7256	0.371016	20.24816	29.79707	0.4062
At most 4	7.397105	14.2646	0.4433	0.285543	10.04786	15.49471	0.2771
At most 5	2.650756	3.841466	0.1035	0.113513	2.650756	3.841466	0.1035

λ_{\max} and λ_{trace} tests indicates 2 cointegrating eqn(s) at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

The results of the JJ maximum likelihood tests for λ_{\max} (Maximum statistics) and the λ_{trace} (Trace statistics) was presented in Table 2. From results it shows that both the λ_{\max} and λ_{trace} eigenvalue tests result reveals the existence of two unique cointegrating vectors among the test variables, this translate that the variable shares steady long-run equilibrium. The presence of cointegration relationships among the variables permits the running of DOLS for equation 1 and 2 simultaneously.

Table 3: DOLS

Variables	Coefficients			
	Equation 1	Prob	Equation 2	Prob.
LOGRUFINDEV	0.928301	0.01***	2.904561	0.0062***
LOGFDI	-3.62038	0.0181***	-8.95696	0.0035***
LOGINFLATION	1.201579	0.1047	2.350427	0.0081***
LOGM2			-3.94478	0.25
LOGCPS			-0.86269	0.7116
R ²	0.730626		0.359986	
Adj R ²	0.461253		0.997256	
Durbin-Watson stat	1.534512		0.591998	
Fixed leads and lags specification (lead=1, lag=1)				
*** indicates significant at 1% level				

The Stock-Watson DOLS estimate for equation 1 and 2 appeared in Table 3 and it could be discern from the Table that the coefficient of rural financial development is statistically significant at 1% probability level and positively related with economic growth in both equations. This finding indicates that stock of formal credit in rural

areas of Nigeria has the capacity to spur the growth of the country's economy. Moreover, the coefficient of FDI and inflation were not statistically significant and possess negative (which dovetails into the findings of Aliero *et al*, 2013) and positive (which disputed the findings Aliero *et al*, 2013 who reported insignificant negative relation between inflation and economic growth) signs respectively. Introducing M2 and CPS in equation 2 does not change the signs and the level of significance for all the variables but only inflation metamorphosed into significant. The finding in equation 4 shows that M2 and CPS are negative and statistically insignificant. This finding concurs the findings of Shen and Lee (2006) which provide evidence that banking development has an unfavourable effect on economic growth as well as that Adusei (2012) who documented an inverse relationship between CPS and economic growth of South Africa for the 1965 - 2010 period.

V Conclusion

This study examines the relationship between rural financial sector developments and economic growth. The study uses time series data covering 1980 - 2011 periods which lend credence for the application of Johansen and Juselius model of cointegration to detect the long-run relation among the variables in question following the examination of the series via an ADF test of a unit root. DOLS method was used to unveil relationship between rural financial development and economic growth. The cointegration test result reveals the presence of long-run relation between rural financial development and economic growth of Nigeria. Moreover, the DOLS results found that rural financial development spurs the development of the Nigerian economy. It has been confirmed in this study that rural finance serves as an engine of growth in the rural areas of Nigeria. The paper, therefore, concludes that enhancing productive credit in rural areas of Nigeria could free the disadvantaged entrepreneurs and thus enable them to contribute immensely toward the development of the Nigerian economy. As such, for the transformation agenda of the Federal Government of Nigeria to be achieved, sufficient financing arrangement need to be in place in order to satisfy the financial needs of the farmers. The study, therefore

recommends that barriers to the productive credit allocation in rural areas of Nigeria should be boiled down to the barest minimum. More so, alternative financial product that could render a choice to the diversity of the rural dwellers should be introduced. The licence and the subsequent establishment of Islamic banks in Nigeria by CBN is a good policy in the right direction. However, such initiative needs to be extended to the rural bank branches and microfinance for overall functioning.

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